THE PROGRESSIVE FARMER

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Agriculture.

AN UNIQUE TRUCK FARM.

What an Old Soldier Did With an Eighth of an Acre and a Bent Buggy Spring.

Correspondence of The Progressive Farmer.

There is on exhibition at the Charleston Exposition a large picture in water colors of the peas grown last year by Mr. Lewis Grady, of Kinston, N. C. The picture is the property of the Department of Agriculture of North Carolina and was made from a photograph taken while the peas were in the garden.

Mr. Grady is an old Confederate soldier and for many years has owned a fruit and confectionery stand a half block from the court house on Queen Street, the principal business street in Kinston. Last year he put in his spare moments raising peas and beans in his garden of an eighth of an acre in area. He laid off the rows four feet apart, used one sack of the Hyco fertilizer on ordinary gray loam, and on January 22d planted the Melting Sugar, Marrow Fat and Champion of England peas. The tool used to cultivate the peas was an old piece of a buggy spring bent into shape and bolted to a hoe helve.

The peas grew to a height of eight or ten feet, and some of the Marrow Fat variety to a height of fifteen feet. People from far and near came to see Mr. Grady's pea crop. I saw it and it was well worth a long trip to see. After supplying his family of five and giving away quite a quantity, he sold $30 worth of peas.

On the same piece of land on June 3d he planted some Ford's Mammoth Podded Lima Beans and some Shotwell's Improved Thick Pole Lima Beans. The former have pods seven or eight inches long with six beans to the pod; the latter are shorter, more compact and have six beans to the pod. This bean crop Mr. Grady readily sold for $35.

How is that for an old wounded Confederate soldier with a few spare minutes each day, a bent buggy spring, one sack of fertilizer and an eighth of an acre of ground?

Mr. Grady this year has about one acre of land staked with 1,650 posts with slats nailed on them and his peas are pushing upward with amazing rapidity. B. W. SPILMAN.

PREVENTING OAT SMUT.

Correspondence of The Progressive Farmer.

It lies within the power of every farmer to prevent much of the damage suffered by his crops through the yearly inroads of plant disease. Oat smut is the one that demands particular attention just now.

Very few farmers realize just how much damage they suffer yearly through this pest. The smut dwarfs many of the affected plants so that they usually escape the eye of the farmer as he surveys his field; and what may appear to him to be merely a loss of one or two per cent. is in reality very rarely less than eight per cent., and very frequently runs up into the thirties and forties. This is an absolute loss, as it costs as much in the way of land, seed, tillage and harvesting to raise these smutted stalks as it does to raise full grain.

The smut is caused by a fungus that invades the tissue of the very young oat plant. It is in the seed when sown. The seed may be treated so as to kill the fungus without harm to the oat and the crop be correspondingly benefited.

To treat seed for smut place the seed on a barn floor and thoroughly wet with a solution made by mixing one pound of formalin with 45 to 50 gallons of water. Formalin may be bought at the drug store at from 75 to 90 cents per quart, and the wetting of the oats may be readily accomplished either by a spray pump or by throwing the solution on and then shoveling the heap over till every seed is saturated. Then cover the pile with blankets and allow it to stand 10 or 12 hours.

The seed may be dried with lime and running through the fanning mill will remove extra lime, leaving the seed ready for the drill.

The cost is less than 12 cents per acre for the treatment, labor included, and the gain ranges from 6 to 40 per cent. of the value of the crop.

The stinking smut of wheat may be prevented in the same way, also the barley smut. Corn smut cannot, nor can the loose smut of wheat.

Do not use blue stone on oats, as it injures them. F. L. STEVENS, Professor of Biology, N. C. A. & M. College.

Am often talking PROGRESSIVE FARMER to our tillers of the soil in this section. The truth is we have not come up to the mark in growing crops as cheap as may be done. When we learn to grow our field crops at a less cost by bringing them up to a higher state of perfection on a cheaper basis, then we may find more to follow. Show your skill in the thoroughbred stock, preparation and care of such things as you pretend to grow.—R. R. Moore, Guilford Co., N. C.

HOME-MIXED FERTILIZERS.

Mr. J. B. Oliver, of Wayne County, an occasional contributor to THE PROGRESSIVE FARMER, reports in the current issue of the Practical Farmer the following interesting experience with home-mixed fertilizers:

I have been mixing my fertilizers at home for 20 years or more. My first attempt on this line was mixing my cottonseed and stable manure with acid phosphate and kainit, using 200 pounds acid and 100 pounds kainit per acre, and mixing all the cottonseed and stable manure I had to spare with this amount per acre. This gave me the best results of any fertilizer I ever used, but was costly to mix and handle. About 12 years ago I commenced exchanging my cottonseed for cottonseed meal. I run a custom gin and buy up seed cotton and cottonseed enough to procure an ample supply of cottonseed meal. My formula for cotton and corn is 150 pounds cottonseed meal, 200 pounds 14 per cent. acid, and 25 pounds muriate of potash. I use an 8-foot square tight box, dump these amounts into it and mix thoroughly with shovels. I use 400 to 800 pounds per acre of this for cotton and 200 to 300 pounds per acre for corn. This will run about 3 to 3¼ per cent. ammonia, 8 to 9 phosphoric acid and 4 per cent. potash, and costs at present prices of materials, about $20 per ton. A mixed fertilizer that will analyze the same cannot be bought for less than $25 per ton. For oats I use 100 pounds cottonseed meal, 200 pounds acid; 100 pounds kainit, or 25 pounds muriate of potash; this for one acre. For Irish potatoes, 700 pounds cottonseed meal, 200 pounds nitrate of soda, 700 pounds acid phosphate, 400 pounds sulphate of potash; use 1,200 to 1,500 pounds per acre. For strawberries, 800 pounds cottonseed meal, 800 pounds acid phosphate, 400 pounds sulphate of potash; use 1,600 pounds per acre, applying 800 pounds late in August or September and 800 pounds in December or January, burning off and applying by side of plants. The foregoing are the formulas I have found to pay best on my soil. For cotton, if the land is in good condition and following any crop that leaves plenty of vegetable matter in the soil, less cottonseed meal can be used. If the land is bare of vegetable matter more cottonseed meal can be used with profit. Some times when cottonseed meal is lacking I substitute fish scrap for it, but do not think I get as good results from it as from the cottonseed meal. I doubt very much if it pays to mix nitrate of soda in any fertilizer unless it is used as a top dressing. Last year I left out the nitrate of soda in my potato manure and applied it alongside of the plants after they were up, and had better results than if applied at planting. I am fully convinced after many years of experimenting, that I can get much better results from mixing my own fertilizers, and at much less cost, than by purchasing them ready mixed.

I must say that your paper is constantly improving and that you are done a great work for North Carolina.—W. B. Rodman, Beaufort Co., N. C.

RAISING SUMATRA TOBACCO UNDER COVER.

The Experiments of the Connecticut Experiment Station Described by Director Jenkins—A Report of Special Interest Because of Tests Soon to be Made in North Carolina.

A bulletin on the growing of tobacco under shade is of interest at this time. It has not as yet been conclusively demonstrated that tobacco can be raised profitably under shade. It is known that a few of the most careful growers in New England have produced some of the finest tobacco ever grown, but it has not as yet been sold, nor will it be, until cold weather is past. The 50 acres raised last summer will in itself be largely an experiment in the working up by manufacturers. The leaf is very thin, delicate to handle, is affected by cold weather, but for the highest grade cigar is just the thing. The tobacco raised last year is of such extra quality it is estimated that 1,000 acres will be covered with cheesecloth this year. An increase of acreage from 50 to 1,000 acres in one year, where it is estimated capital of $1,000 per acre must be available, or $1,000,000, shows business enterprise not exceeded in any line of trade.

In 1901, the Connecticut Experiment Station undertook to determine whether wrapper-leaf of the Sumatra type, and which would compare favorably with the imported article, could be raised in Connecticut, by other methods than those commonly employed. The object of the experiments was to raise a larger crop of Sumatra than was raised in the previous year, to learn more definitely both the extra cost of raising a crop under shade and also the yield of tobacco, and to test both the convenience and the effect on quality of cutting and hanging the plants in the usual way instead of picking or priming the leaves and curing them apart from the stalk. The experiments indicate it is not likely that the growing of Sumatra type of leaf in Connecticut can be made a complete success without some years of experience and intelligent experiment.

The frame-work already standing, built in 1900, was extended so as to cover an acre of land. In this extension the 4x4¼-inch uprights supporting the frame were set 11 feet 10 inches apart in the row, the rows of posts themselves being 13⅓ feet apart. The posts in each row were fastened together by 2x4-inch scantling, nailed flat on tops of the posts, and each post was fastened to the posts opposite to it in adjoining rows by 2x4-inch scantling nailed on the sides of the posts, with the edge of the scantling flush with their tops. Scantling 2x5 inches and 20 feet long were also nailed to the outer rows of posts, close to the ground, on the outside. At one end of the shaded field was an 8-foot doorway, closed with cheesecloth, through which teams could enter.

Wire was tightly drawn over this frame lengthwise and also crosswise of the structure, midway between each row of uprights. This served as a further support to the cheesecloth cover. The cheesecloth was 142 inches wide, four one-yard breadths being sewed together, and covering the space between the transverse rows of posts, which had been set 11 feet 10 inches apart. The cheesecloth was fastened to the frame by lath wherever the cloth came in contact with the frame. The land was manured in the fall of 1900 with New York stable manure, 10 tons to the acre, and fertilized after plowing in the spring of 1901 with 500 pounds of dry fish scrap, 400 pounds of "vegetable ashes," and 1800 pounds of cottonseed meal.

Four different strains of Sumatra tobacco seed were tested in 1901, the main body of the crop, however, being from seed which was grown on the same land in 1900. The seed for the 1900 crop was produced in Florida from seed which came from the island of Sumatra. The plants were set under shade, in rows 3¼ feet apart, the plants 11 inches apart in the row, or about 11,290 plants to the acre. About 3½ weeks before harvesting, the whole was topped by cutting off the flower stem crop close to the upper leaf of the main stalks.

It is not at all easy for one of limited experience to determine when the leaf is ready to pick. The signs of ripeness can be in general described, but not detected certainly without long experience. The leaf is likely to be lighter green than the unripe, it shows a yellowish cast on the tip and the edges near the tip, and small spots of darker green appear on its surface. The whole plant at this time takes on a yellowish green shade.

A part of the tobacco, from 7,800 square feet or a little less than one fifth of an acre, was picked or primed from the stalks in the field, and hung on strings. Three primings were made, about seven leaves at each priming, and all were made within three or four days, beginning August 28. Four fifths of the crop was harvested on the stalk three or four days later. To do this, each stalk was cut in two and hung on hook lath, the tops with ten hooks, the bottoms with eight hooks to the lath, the usual way.

The cost of picking the leaves, bringing them to the barn and hanging them after stringing, is probably hardly greater than that of cutting, spading, teaming and hanging the plants harvested in the usual way. Where there is a considerable acreage of tobacco and the harvesting lasts over a period of five or six weeks, two lots of tobacco can be cured in the same barn, the first harvesting being cured and taken down by the time the last harvesting is ready to go in. When the primed leaves are cured the string can be cut at each end, wound around the butts, thus making a hand of it, and put in bundles, or the leaves can be drawn from the string and bundled loose.

The extra cost of growing, harvesting and curing Sumatra wrapper leaf under shade: Cost per acre of lumber $252 35, cost per acre of wire 0.96, cost per acre of construction $36; total $299.31. Assuming that the frame will last for five years, there should be charged to each crop one-fifth of this sum, or $59.86. Lath for fastening the cloth $13.17, cost of cheesecloth $162 94, labor of putting on cloth $12 45, repairs $12, twine for stringing leaves $5 66, stringing the picked leaves $49.60, extra lath for stringing $27 50, of which 40 per cent. is charged to the crop $11; total $326 68. The actual extra outlay of the first year for shading and harvesting was $83.63 per acre. These figures show very closely the actual extra cost of raising and curing an acre of shaded Sumatra tobacco, although other experimenters have spent very considerably less. The chief economies are in getting out the needed posts from the owner's wood lot, in setting them further apart and in using farm labor putting up the frame, when other work is not pressing.—E. H. Jenkins, Connecticut Experiment Station.

Mount Airy News: Wheat is improving rapidly and the outlook is growing brighter for a fair sized crop in some sections. We get this information from some of the farmers who tell us that the late snow saved the wheat crop.

Mr. Whitener's letter in THE PROGRESSIVE FARMER reminds me of my own experience. In 1882, when I began plowing, the plows used to turn land were the old fashioned steel twisters. Then my father bought a two-horse cast plow; we thought it a grand improvement. We sowed wheat by hand, plowed or harrowed it in, and cut with scythe and cradle. Then came the chilled plows and the drill. Now I am living on one third of the same land and make more grain on it than we made on all of it. I use disc plows and disc harrow and disc drill and cut wheat with reaper and binder. The farming has greatly improved in this period of time, though some use old-fashioned tools yet and only scratch deep enough so that the hot sun and heavy rains get the benefit of it rather than the crop.—R. L. Wagner, Burke Co., N. C.

Horticulture.

AN INTERESTING PAPER ON PEACH LEAF CURL.

Also Some Notes Regarding Two Other Papers by A. & M. Students.

Correspondence of The Progressive Farmer.

At the last meeting of the A. & M. College Biological Club, many topics of interest were presented by different speakers. The three principal papers on the programme are outlined below.

The first was by Mr. Foster, who showed some young tomato plants that were badly infected by damping off. This is a disease caused by a fungus known to science as *appgthium*. Its control is difficult in any other manner than by diminishing dampness of the air, and heightening the general vitality of the plant.

The second paper was by Mr. Bullock, who made an interesting talk on "Seed Distribution," showing specimens to illustrate how different seeds take advantage of the wind and animals to travel to distant places to spread their race.

The third paper was by Mr. Coit, "PEACH LEAF CURL; ITS NATURE AND TREATMENT."

Peach leaf curl or, as it is some times called, leaf blister, is a disease which affects the leaves, flowers, shoots and fruit of the peach tree.

Its action is most severe in the spring of the year, shortly after the leafing of the trees, and the greatest injuries are caused in wet seasons and humid localities. The leaves become enlarged, thickened, much curled and distorted. The healthy green color changes to a sickly appearance and the leaves soon fall. The young fruit ceases to grow, wilts and also falls. If the conditions of the atmosphere are right, a second growth of leaves will come out, but the terminal growth generally dies. In severe attacks young trees are frequently killed.

This disease is confined to the peach and its near of kin, as it crosses on the almond and several varieties of nectarines.

The distribution of peach leaf curl in the United States extends from the Gulf of Mexico to Canada, and from the Atlantic to the Pacific.

A very conservative estimate of the loss occasioned by peach leaf curl in the United States places the figures at the average of $10.95 per acre for the acreage reported as suffering from the disease. The annual loss to the United States is estimated at $3,000,000 or more.

A FUNGOUS DISEASE

The direct cause of the peach leaf curl is a parasitic fungus (*Exoascus Deformaus*). Many growers were long of the opinion that the curl was caused by certain humid conditions of the soil and atmosphere. It is now acknowledged, however, to be due to this fungus; and it has been proved that if we can control the growth of the fungus, we can control the disease. In fact, the control of this fungus has been found to be practical, simple, and inexpensive. For a long time it was thought that the spread of *Exoascus Deformaus* was occasioned by *perennial mycelium* which wintered over in the tissues of the twigs and branches. This, to a certain extent is true, but late investigations have proved that the spread of this disease is almost wholly caused by spores which winter on the outside of the twigs, around the newly formed buds.

Before this was discovered, there was no way to combat the disease, except by pruning off the infected branches and destroying them. But since we now know that in the majority of cases infection is caused by spores, we may at once take advantage of the spray pump and at very little expense almost wholly eliminate this disease from our orchards.

Badly infested branches usually die during the year, while in a few cases they may support a living *mycelium* through the winter which may infect the opening buds in spring. Most diseased branches are easily detected by the eye and may be removed by pruning off the diseased parts a few internodes below the swelling.

In almost all cases infection occurs just as the buds open in the spring from the spores which have wintered on the branches around the buds. On account of this fact, as has just been stated, we are enabled to prescribe a treatment.

TREATMENT.

The curl was first successfully treated in California during the period from 1880 to 1885, the success depending upon the application of fungicides to the dormant trees. The disease was not successfully treated in Europe for ten years after its prevention in the United States.

The treatment consists in spraying the trees while yet in the dormant condition before the buds open in spring. At first sulphur and other sprays were used, but lately copper sprays are found to be much the best. Of the various copper sprays Bordeaux mixture in the proportion of five pounds of copper sulphate ($A SO_4$) to five pounds of lime in forty-five gallons of water has been found to give the best results. By treating peach leaf curl in this way, from 95 to 98 per cent. of the spring foliage may easily be saved.

According to experiments made at Santa Anna, California, Bordeaux mixture when applied to the dormant tree increased the weight and starch-producing power of the leaves, and the sprayed trees showed a great gain over the unsprayed in the number and quality of the fruit buds they produced. The gain in the number of fruits per buds was over 100 per cent. in some cases.

The lower limbs of sprayed trees showed marked gain over those of unsprayed ones as compared with the upper limbs in both the number of fruit buds and lateral shoots produced. The average value of the fruit per tree in rows treated with the most effective Bordeaux mixture ranged as high as $6.20 above that per tree in the adjoining untreated rows, or the equivalent of a net gain of $427 80 per cent. where trees are planted 25x25 feet. Over 1,000 per cent. net gain in the fruit has resulted in the use of some of the most effective sprays.

DIRECTIONS FOR SPRAYING.

The trees should be sprayed each season, as experiments prove that treatment one season will not prevent the disease from appearing the following year.

The proper time to apply sprays for the prevention of curl is in dry, calm weather, and in the middle of the day, about three weeks before the trees blossom in spring.

Some of the very choicest varieties, as the Elberta and Lovell are seriously affected, and it has been demonstrated that a single winter treatment will prevent the disease on even these varieties.

It may thus be fairly claimed that the spraying methods recommended will save to the peach industry some of its finest varieties, as well as result in the saving of foliage and crops already spoken of.

J. E. MILLER, Cor. Sec'y.
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Good butter cannot be made by pouring hot water into the churn to get the right temperature. This makes the butter puffy and pale. The cream should be warmed before it goes to the churn by placing the vessel containing it in another vessel of warm water and stirring until the proper temperature is secured.—Farm and Ranch.

KENTUCKY TOBACCO GROWERS ORGANIZE

Tobacco growers in Kentucky are attempting to organize an association to handle and market the product of their farms. Kentucky tobacco is used largely in the manufacture of plug and twist; and consolidation in this branch of the trade has approached almost to the point of monopoly. The Kentucky tobacco growers, feeling the pressure of lowered prices, now propose to meet combination with combination.—Philadelphia Record.

The first "creamery" in the United States was built in 1861 at Wallkill, Orange county, New York. This establishment utilized the milk from 375 cows daily.